TECHNIQUE FOR DYNAMICALLY ADJUSTING LOOKAHEAD TIME FOR CHANNEL MAP MESSAGES TO ACHIEVE OPTIMAL PACKET PERFORMANCE OVER AN ACCESS NETWORK

Abstract of the Disclosure

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A technique is described for improving packet performance in an access network. The access network comprises a Head End and a plurality of nodes. The access network further includes at least one downstream channel used by the Head End to communicate

10 with a first plurality of network nodes, and at least one shared-access upstream channel used by the first plurality of nodes to communicate with the Head End. The access control system includes a MAP generating device for generating MAP messages of future slot allocations on the at least one upstream channel. Each MAP message specifies a specific, future allocation start time (SAT) for that particular MAP message. The SAT for each

15 MAP message is determined by adding a lookahead time (LAT) value to a current time value at the Head End which is obtained while the MAP message is being generated by the MAP generating device. Propagation delay data associated with at least a portion of the plurality of nodes using the at least one upstream channel is obtained. The propagation delay data corresponding to a particular node is obtained from ranging

20 procedures performed between the access control system and the node. The propagation delay data is then used to dynamically adjust the lookahead time value associated with the generating of MAP messages for the at least one upstream channel. According to a specific aspect of the invention, the lookahead time value is dynamically calculated using a minimum propagation delay value, which corresponds to a farthest on-line node on the

25 at least one upstream channel. According to another aspect of the invention, the minimum lookahead time value is used for generating MAP messages which do not include initial ranging slot allocations, and a second Lookahead time value is used for generating MAP messages which include at least one initial ranging slot allocation.